



30

05/04/04

1614

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 01-104-B)

In the Application of:

Cone et al.

Serial No: 10/074,754

Filing Date: February 13, 2002

For: Methods and Reagents for Discovering and
Using Mammalian Melanocortin Receptor
Agonists and Antagonists to Modulate
Feeding Behavior in Animals

Examiner: Not Assigned

Group Art Unit: 1614

TRANSMITTAL LETTER

Commissioner for Patents
Alexandria, VA 22313-1450

Dear Sir:

In regard to the above identified application,

1. We are transmitting herewith the attached:

- a) Information Disclosure Statement and references cited therein
- b) PTO Form 1449
- c) International Search Reports
- d) Return postcard

2. With respect to fees:

- a) No fees are required
- b) Please charge any underpayment or credit any overpayment our Deposit Account, No. 13-2490.

3. CERTIFICATE OF MAILING UNDER 37 CFR § 1.8: The undersigned hereby certifies that this Transmittal Letter and the paper, as described in paragraph 1, are being deposited with the United States Postal Service with sufficient postage express mail in an envelope addressed to the Commissioner for Patents, Alexandria, VA 22313-1450 on May 3, 2004.

Respectfully submitted,

Date: May 3, 2004

Kevin E. Noonan, Ph.D.
Registration No. 35,303



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 01-104-B)

In the Application of:

Cone et al.

Serial No: 10/074,754

Filing Date: February 13, 2002

For: Methods and Reagents for Discovering and
Using Mammalian Melanocortin Receptor
Agonists and Antagonists to Modulate
Feeding Behavior in Animals

Examiner: Not Assigned

Group Art Unit: 1614

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. Section 1.97 - 1.99, the Applicant wishes to make the following references of record in the above-identified application. This Information Disclosure Statement is in compliance with the continuing duty of candor as set forth in 37 C.F.R. Section 1.56. Copies of the references cited below are enclosed. These references are also listed on the enclosed PTO Form 1449.

In the judgment of the undersigned, portions of the listed references may be material to the Examiner's consideration of the presently pending claims. This statement is not a representation that the listed references have effective dates early enough to be "prior art" within the meaning of 35 U.S.C. Section 102 or Section 103.

Applicants do not believe any fee is due with this submission. If this belief be in error and the Patent Office determines that the fee prescribed in the relevant portion of 37 C.F.R. Section 1.97 is applicable, the undersigned representative by his signature hereby authorizes any such fee to be debited from Deposit Account 13-2490.

Respectfully submitted,
McDonnell Boehnen Hulbert & Berghoff

Date: May 3, 2004

Kevin E. Noonan
Reg. No. 35,303

FORM PTO-1449
(Rev. 2-32)

U.S. Department of Commerce
Patent and Trademark Office

Atty. Docket No.

Serial No.

01-104-B

10/074,754

INFORMATION DISCLOSURE STATEMENT BY
APPLICANT



Applicant: Cone et al.

Filing Date:
February 13, 2002

Group: 1614

U.S. PATENT DOCUMENTS

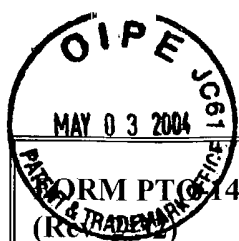
Examiner Initial	Document Number								Date	Name	Class	Subclass	Filing Date if Appropriate
	1	5	2	8	0	1	1	2	1/18/94	Cone et al.			
	2	5	5	3	2	3	4	7	7/2/96	Cone et al.			
	3	4	6	8	3	1	9	5	7/28/97	Mullis et al.			
	4	4	6	8	3	2	0	2	11/27/90	Mullis			

FOREIGN PATENT DOCUMENTS

		Document Number							Date	Country	Class	Subclass	Translation	
													Yes	No
	5	WO	93	2	1	3	1	6	10/28/93	PCT				
	6	WO	93	2	1	3	1	5	10/28/93	PCT				

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.



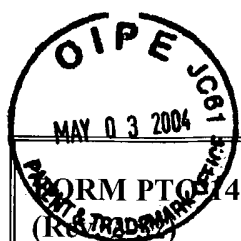
U.S. Department of Commerce Patent and Trademark Office INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Atty. Docket No. 01-104-B	Serial No. 10/074,754
	Applicant: Cone et al.	
	Filing Date: February 13, 2002	Group: 1614

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

7	Ahmed et al., "Isolation and p purification of a melanocyte-stimulating hormone receptor from B16 murine melanoma cells. A novel approach using a cleavable biotinylated photoactivated ligand and streptavidin-coated magnetic beads," <i>The Biochemical Journal</i> 286 :377-382 (September 1, 1992)
8	Bergendahl et al., "Short-Term Starvation Decreases POMC mRNA but Does Not Alter GnRH mRNA in the Brain of Adult Male Rats," <i>Neuroendocrinol.</i> 56 :913-920 (1992)
9	Bertling, "Transfection of a DNA/Protein Complex into Nuclei of Mammalian Cells Using Polyoma Capsids and Electroporation," <i>Bioscience Reports</i> 7 :107-112 (1987)
10	Bost et al., "Molecular characterization of a corticotropin receptor," <i>Molecular and Cellular Endocrinology</i> 44 :1-9 (1986)
11	Bost et al., "Similarity between the corticotropin (ACTH) receptor and a peptide encoded by an RNA that is complementary to ACTH mRNA," <i>PNAS</i> 82 :1372-1375 (March 1985)
12	Brady et al., "Altered Expression of Hypothalamic Neuropeptide mRNAs in Food-Restricted and Food-Deprived Rats," <i>Neuroendocrinol.</i> 52 :441-447 (1990)
13	Buckley & Ramachandran, "Characterization of corticotropin receptors on adrenocortical cells," <i>Proc. Natl. Acad. Sci. USA</i> 78 :7431-7435 (1981)
14	Chen & Okayama, "High-Efficiency Transformation of Mammalian Cells by Plasmid DNA," <i>Mol. Cell. Biol.</i> 7 :2745-2752 (1987)
15	Chen et al., "A Colorimetric Assay for Measuring Activation of G _s - and G _q -Coupled Signaling Pathways," <i>Analyt. Biochem.</i> 226 :349-354 (1995)
16	Chhajlani et al., "Molecular cloning and expression of the human melanocyte stimulating hormone receptor cDNA," <i>FEBS Letters</i> 309 (3):417-420 (September 14, 1992)
17	Chirgwin et al., "Isolation of Biologically Active Ribonucleic Acid for Sources Enriched in Ribonuclease," <i>Biochemistry</i> 18 :5294-5299 (1979)

EXAMINER	DATE CONSIDERED
-----------------	------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.



U.S. Department of Commerce Patent and Trademark Office INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Atty. Docket No. 01-104-B	Serial No. 10/074,754
	Applicant: Cone et al.	
	Filing Date: February 13, 2002	Group: 1614

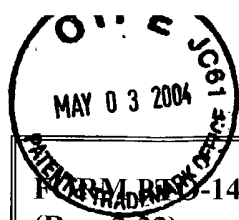
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

18	DeWied & Jolles, "Neuropeptides derived from pro-opiocortin: Behavioral, physiological and neurochemical effects," <i>Physiol. Rev.</i> 62 :976-1059 (1982)
19	Dixon et al., "Structural features required for ligand binding to the β -adrenergic receptor," <i>EMBO J.</i> 6 :3269-3275 (1987)
20	Eberle et al., "Receptor-specific antibodies by immunization with 'antisense' peptides?," <i>Peptide Research</i> 2(3) :213-220 (1989)
21	Felgner et al., "Enhanced Gene Delivery and Mechanism Studies with a Novel Series of Cationic Lipid Formulations," <i>J. Biol. Chem.</i> 269 :2550-2561 (1994)
22	Fink et al., "The CGTCA sequence motif is essential for biological activity of the vasoactive intestinal peptide gene cAMP-regulated enhancer," <i>Proc. Natl. Acad. Sci. USA</i> 85 :6662-6666 (1988)
23	Gantz et al., "Molecular Cloning of a Novel Melanocortin Receptor," <i>J. Biol. Chem.</i> 268 :8246-8250 (1993)
24	Gerst et al., "Dual Regulation of β -Melanotropin Receptor Function and Adenylate Cyclase by Calcium and Guanosine Nucleotides in the M2r Melanoma Cell Line," <i>Mol. Pharmacol.</i> 31 :81-88 (1987)
25	Gilman, "A Protein Binding Assay for Adenosine 3':5'-Cyclic Monophosphate," <i>Proc. Natl. Acad. Sci. USA</i> 67 :305-312 (1979)
26	Grahame-Smith et al., "Adenosine 3':5'-Monophosphate as the Intracellular Mediator of the Action of Adrenocorticotrophic Hormone on the Adrenal Cortex," <i>J. Biol. Chem.</i> 242 :5535-5541 (1967)
27	Gruber & Callahan, "ACTH-(4-10) through gamma-MSH: evidence for a new class of central autonomic nervous system-regulating peptides," <i>Am. Physiol. Soc.</i> 257 :R681-R694 (1989)
28	Hanneman et al., "Peptides encoded by the pro-opiomelanocortin gene," in <i>Peptide Hormone as Prohormones</i> , G. Martinez, ed. (Ellis Horwood Ltd.: Chichester, UK) pp. 53-82 (1987)
29	Hofmann et al., "Radioactive probes for adrenocorticotrophic hormone receptors," <i>Biochemistry</i> 25(6) :1339-1346 (March 25, 1986)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.



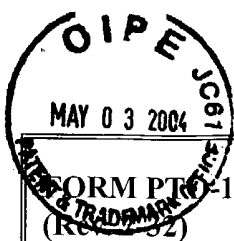
<p>PATENT & TRADEMARK OFFICE-1449 (Rev. 2-32)</p> <p>U.S. Department of Commerce Patent and Trademark Office</p> <p>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</p>	<p>Atty. Docket No.</p> <p>01-104-B</p>	<p>Serial No.</p> <p>10/074,754</p>
	<p>Applicant: Cone et al.</p>	
	<p>Filing Date:</p> <p>February 13, 2002</p>	<p>Group: 1614</p>

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

30	Hruby et al., "Cyclic Lactam α -Melanotropin Analogues of Ac-Nle ⁴ -cyclo[Asp ⁵ ,D-Phe ⁷ ,Lys ¹⁰] α -Melanocyte-Stimulating Hormone-(4-10)-NH ₂ with Bulky Aromatic Amino Acids at Position 7 Show High Antagonist Potency and Selectivity at Specific Melanocortin Receptors," <i>J. Med. Chem.</i> 38 :3454-3461 (1995)
31	Kameyama et al., "Expression of melanocyte stimulating hormone receptors correlates with mammalian pigmentation, and can be modulated by interferons," <i>J. Cellular Physiology</i> 137 (1):35-44 (October 1988)
32	Karnik et al., "Cysteine residues 110 and 187 are essential for the formation of correct structure in bovine rhodopsin," <i>Proc. Natl. Acad. Sci. USA</i> 85 :8459-8463 (1988)
33	Klein et al., "Pressor and cardioaccelerator effects of gamma MSH and related peptides," <i>Life Sci.</i> 36 :769-775 (1985)
34	Labbe et al., "Molecular Cloning of a Mouse Melanocortin 5 Receptor Gene Widely Expressed in Peripheral Tissues," <i>Biochem.</i> 33 :4543-4549 (1994)
35	Laursen and Belknap, "Intracerebroventricular Injections in Mice," <i>J. Pharmacol. Methods</i> 16 :355-357 (1986)
36	Leiba et al., "The melanocortin receptor in the rat lacrimal gland: a model system for the study of MSH (melanocyte stimulating hormone) as a potential neurotransmitter," <i>European Journal of Pharmacology</i> 181 (1-2):71-82 (May 31, 1990)
37	Libert et al., "Selective Amplification and Cloning of Four New Members of the G Protein-Coupled Receptor Family," <i>Science</i> 244 :569 (1989)
38	Lin et al., "A γ -melanocyte stimulating hormone-like peptide causes reflex natriuresis after acute unilateral nephrectomy," <i>Hypertension</i> 10 :619-627 (1987)
39	Ling et al., "Synthesis and biological activity of four gamma-melanotropin peptides derived from the cryptic region of the adrenocorticotropin/ β -lipotropin precursor," <i>Life Sci.</i> 25 :1773-1780 (1979)

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.



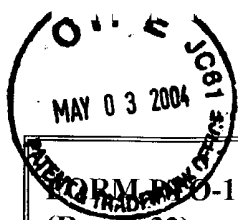
FORM PTO-1449 (Rev. 7-92) U.S. Department of Commerce Patent and Trademark Office INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Atty. Docket No. 01-104-B	Serial No. 10/074,754
	Applicant: Cone et al.	
	Filing Date: February 13, 2002	Group: 1614

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

40	Lu et al., "Agouti protein is an antagonist of the melanocyte-stimulating-hormone receptor," <i>Nature</i> 371 :799-802 (1994)
41	Masu et al., "cDNA cloning of bovine substance-K receptor through oocyte expression system," <i>Nature</i> 329 :836-838 (1987)
42	Matsuda et al., "Structure of a cannabinoid receptor and functional expression of the cloned cDNA," <i>Nature</i> 346 :561-564 (1990)
43	Mertz et al., "Adrenocorticotropin receptors: Functional expression from rat adrenal mRNA in <i>Xenopus laevis</i> oocytes," <i>PNAS</i> 88 :8525-8529 (1991)
44	Moore et al., <i>Endocrinology</i> 34 :107-114 (1991)
45	Mountjoy et al., "Localization of the Melanocortin-4 Receptor (MC4-R) in Neuroendocrine and Autonomic Control Circuits in the Brain," <i>Mole. Endocrinol.</i> 8 :1298-1308 (1994)
46	Mountjoy et al., "The cloning of a family of genes that encode the melanocortin receptors," <i>Science</i> 257 :1248-1251 (1992)
47	Oelofsen & Ramachandran, "Studies of Corticotropin Receptors on Rat Adipocytes," <i>Arch. Biochem. Biophys.</i> 225 :414-421 (1983)
48	Oki et al., "γ-MSH Fragments from ACTH-β-LPH Precursor Have an Affinity for Opiate Receptors," <i>Eur. J. Pharmacol.</i> 64 :161-164 (1980)
49	Pawalek, "Studies on the Cloudman Melanoma Cell Line as a Model for the Action of MSH," <i>Yale J. Biol. Med.</i> 58 :571-578 (1985)
50	Pawelek, "Factors Regulating Growth and Pigmentation of Melanoma Cells," <i>J. Invest. Dermatol.</i> 66 :201-209 (1976)
51	Roselli-Reh fuss et al., "Identification of a receptor for γ melanotropin and other proopiomelanocortin peptides in the hypothalamus and limbic system," <i>Proc. Natl. Acad. Sci. USA</i> 90 :8856-8860 (1993)

EXAMINER	DATE CONSIDERED
-----------------	------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.



U.S. Department of Commerce Patent and Trademark Office INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Atty. Docket No. 01-104-B	Serial No. 10/074,754
	Applicant: Cone et al.	
	Filing Date: February 13, 2002	Group: 1614

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

52	Saiki et al., "Primer-Directed Enzymatic Amplification of DNA with a Thermostable DNA Polymerase," <i>Science</i> 239 :487-491 (1988)
53	Sambrook et al., 1990, <u>Molecular Cloning: A Laboratory Manual</u> (Cold Spring Harbor Press: New York)
54	Sanger et al., "DNA sequencing with chain-terminating inhibitors," <i>Proc. Natl. Acad. Sci. USA</i> 74 :5463-5467 (1977)
55	Schild, "pA, A New Scale for the Measurement of Drug Antagonism," <i>Brit J. Pharmacol.</i> 2 :189-206 (1947)
56	Schimmer et al., "Adrenocorticotropin-Resistant Mutants of the Y1 Adrenal Cell Line Fail to Express the Adrenocorticotropin Receptor," <i>J. Cell Physiol.</i> 163 :164-171 (1995)
57	Schimuze, "Thirty-five years of progress in the study of MSH," <i>Yale J. Biol. Med.</i> 58 :561-570 (1985)
58	Shimizu et al., "Effects of MSH on Food Intake, Body Weight and Coat Color of the Yellow Obese Mouse," <i>Life Sci.</i> 45 :543-552 (1989)
59	Siegrist et al., "Characterization of Receptors for α -Melanocyte-stimulating Hormone on Human Melanoma Cells," <i>Cancer Research</i> 49 :6352-6358 (November 15, 1989)
60	Siegrist et al., "Quantification of MSH receptors on mouse melanoma tissue by receptor autoradiography," <i>J. Receptor Res.</i> 11 :323-331 (1991)
61	Slominski et al., "Melanotropic activity of gamma MSH peptides in melanoma cells," <i>Life Sci.</i> 50 :1103-1108 (1992)
62	Smithies et al., "Insertion of DNA sequences into the human chromosomal β -globin locus by homologous recombination," <i>Nature</i> 317 :230-234 (1985)
63	Solca et al., "The receptor for α -melanotropin of mouse and human melanoma cells," <i>J. Biol. Chem.</i> 264 :14277-14280 (1989)

EXAMINER	DATE CONSIDERED
-----------------	------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

MAY 03 2004

Sheet 7 of 7

FORM PT-601 1449
(Rev. 2-32)

U.S. Department of Commerce
Patent and Trademark Office

Atty. Docket No.

Serial No.

01-104-B

10/074,754

INFORMATION DISCLOSURE STATEMENT BY
APPLICANT

Applicant: Cone et al.

Filing Date:
February 13, 2002

Group: 1614

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

64	Spindel et al., "Cloning and Functional Characterization of a Complementary DNA Encoding the Murine Fibroblast Bobmesin/Gastrin-Releasing Peptide Receptor," <i>Mol. Endocrinol.</i> 4 :1956-1963 (1990)
65	Tatro & Reichlin, "Specific receptors for α -melanocyte-stimulating hormone are widely distributed in tissues of rodents," <i>Endocrinology</i> 121 :1900-1907 (1987)
66	Tatro et al., "Melanotropin Receptors of Murine Melanoma Characterized in Cultured Cells and Demonstrated in Experimental Tumors <i>in Situ</i> ," <i>Cancer Res.</i> 50 :1237-1242 (1990)
67	Thomas & Capecchi, "Site-Directed Mutagenesis by Gene Targeting in Mouse Embryo-Derived Stem Cells," <i>Cell</i> 51 :503-512 (1987)
68	<u>Tissue Culture</u> , Academic Press, Kruse & Patterson, editors (1973)
69	Tsujii et al., "Acetylation Alters the Feeding Response to MSH and Beta-Endorphin," <i>Brian Res. Bull.</i> 23 :165-169 (1989)
70	Yen et al., "Obesity, diabetes, and neoplasia in yellow $A^{vy}/-$ mice: ectopic expression of the <i>agouti</i> gene," <i>FASEB J.</i> 8 :479-488 (1994)
71	Zhou et al., "Cloning and expression of human and rat D ₁ dopamine receptors," <i>Nature</i> 347 :76-80 (Sep. 1990)

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.